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CHINESE AGRICULTURAL BULLETIN DESCRIBES
MAKING GRANULAR FERTILIZER

[Comment and Summary: This report is extracted from an article in Chi Nung T'ung-pao (Mechanized Agriculture Bulletin), No 47, 16 February 1953. It describes the manufacture of fertilizer from waste vegetable matter and ammonium sulfate or lime superphosphate. The process includes the use of simple machinery. The manufacture and use of this fertilizer is recommended for state farms in the Northeast.]

Raw Materials

Organic raw materials: According to the report of the Northeast Agricultural Science Research Institute, partially decomposed cattails or other plants gathered from wasteland were used.

Inorganic materials: At present, the only inorganic materials used by the Agricultural Production Office of the Northeast Agriculture Department are ammonium sulfate and lime superphosphate. The stickiness of the lime superphosphate caused some difficulties in making the fertilizer.

Machinery

At present, no special machinery is used, since only remodeled old equipment is available. The following are now being used: a shredder, formerly used to prepare fodder; a mixer, formerly used to prepare large quantities of sauce, and a granulator made of a metal plate with holes drilled in the center and a wooden rim. The granulator is mounted on a wooden frame so that it can be shaken back and forth by an electric motor.

Capacity of Machinery

The shredder can handle 1.5-2 tons per day. The mixer can mix 1.5 tons per day if ammonium sulfate is used and 400 to 450 kilograms per day if superphosphate is used.

Procedure

The cattails should have a moisture content of not more than 50 percent. If other plant materials are used, experiments should be conducted to determine the most suitable moisture content.

After the cattails have been thoroughly chopped, a certain amount of the plant material is spread on the floor and an appropriate amount of the inorganic material is added. The relative proportion is determined by the use to which the fertilizer is to be put. The Northeast Agriculture Department makes the following three types:

Organic material, one part; lime superphosphate, one part.

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The organic and inorganic materials should be completely mixed so that the moisture in the organic material can partially dissolve the inorganic material and cause it to be adsorbed.

The thoroughly mixed fertilizer is then slowly fed into the mixer.

The fertilizer is taken from the mixer when finished and placed in the granulator for three to five minutes. It is sifted to obtain a uniform grain size and the unsuitable portion returned to the machine until it is of the proper size.

The finished fertilizer is spread out to dry and is then ready to be packed or used.

Rice husks or wheat chaff may be used as the organic material in making a granular fertilizer but moisture must be added. Decomposed vegetable matter or animal manure may also be used as the organic material and wood or straw ashes may be used as a substitute for the superphosphate.

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